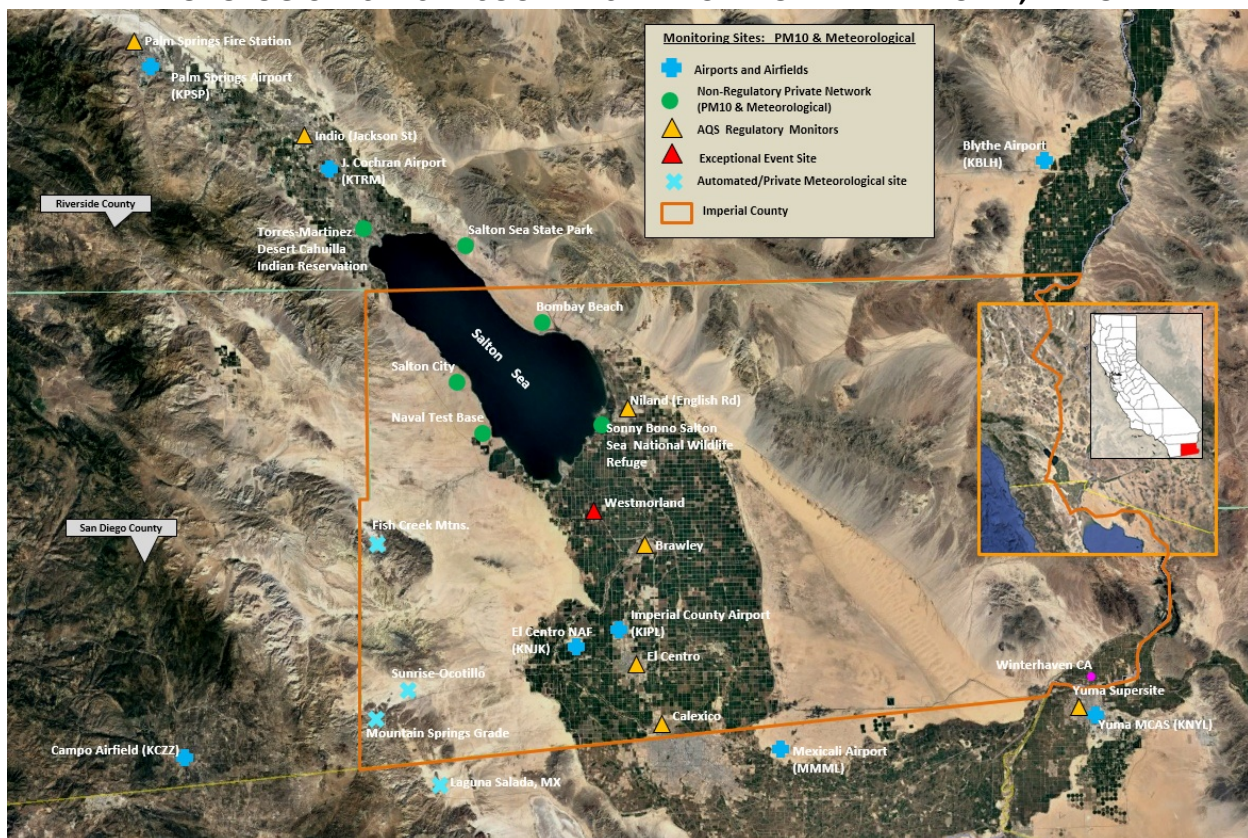


## Appendix B

### Meteorological Data

This section contains meteorological data derived from various regulatory and non-regulatory sites. The data provides a comparative analysis of winds speed, wind direction, wind gusts and concentration data. Please note that meteorological instruments measure at different heights, and at different time intervals. By taking, the actual time of measurement and assuring that all data represented is in Pacific Standard Time (PST) there is uniformity of the data. In addition, not all stations measure at the exact same time, i.e. measurements at 053 and 056 therefore, comparisons are measurements within a 60-minute period. While there may be some overlapping and slight differences the comparative analysis provides the reader with a better understanding of the regional effect of the Exceptional Event.

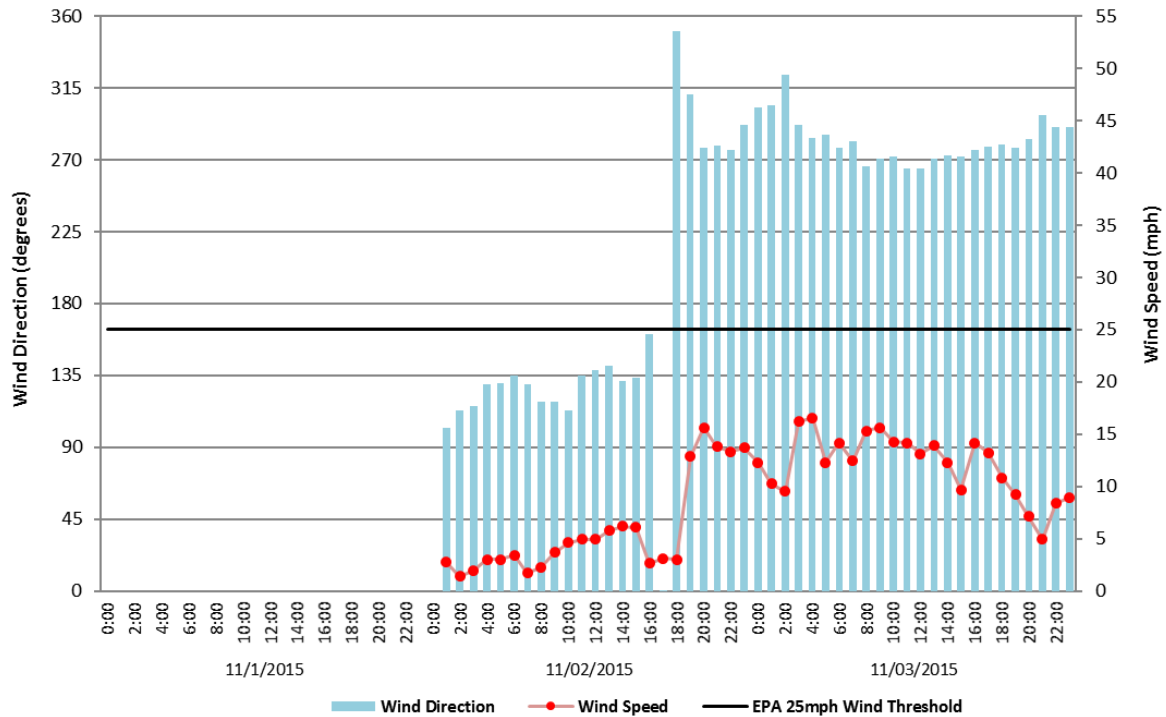
**FIGURE B-1**  
**METEOROLOGICAL SITES IN SOUTHEASTERN CALIFORNIA AND YUMA, ARIZONA**



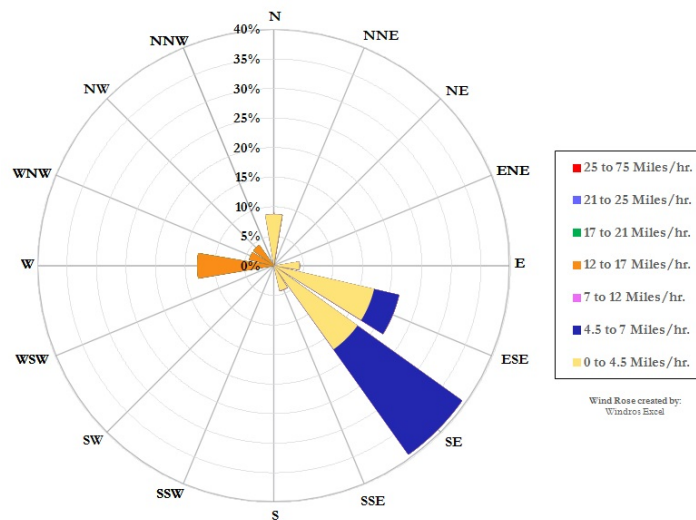
**Fig B-1:** This image shows the meteorological sites and the air quality monitoring sites used in this document. Google Earth base map. Inset locator map of California from Wikipedia

### IMPERIAL COUNTY SITES FIGURES B-2 THROUGH B-13

**FIGURE B-2  
CALEXICO WIND SPEED AND DIRECTION**

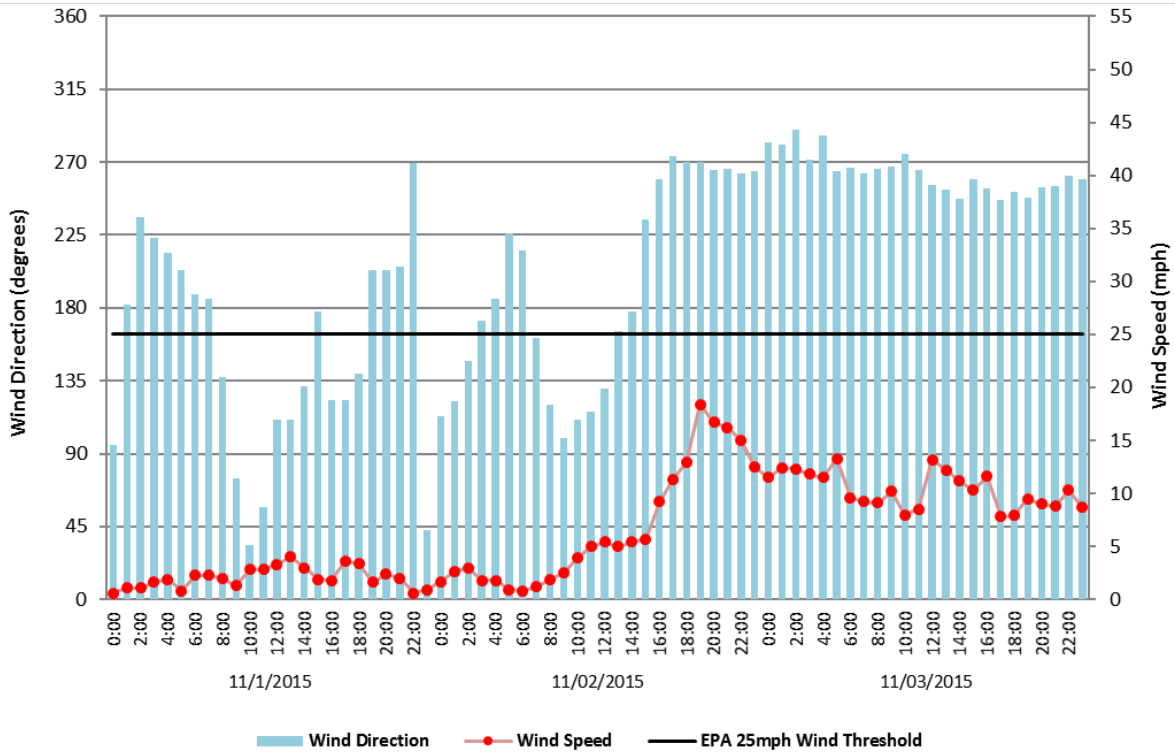


**FIGURE B-3  
CALEXICO WIND ROSE – NOVEMBER 2**

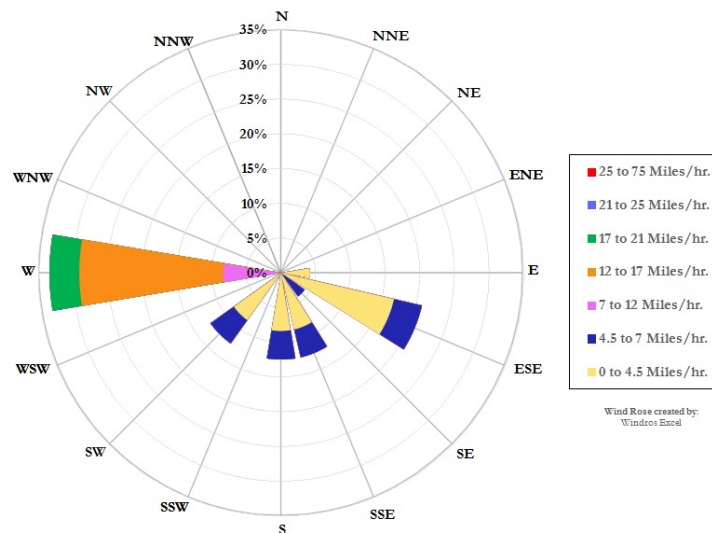


**Figs B-2 through B-3:** Calexico wind data from the EPA's AQS data bank.

**FIGURE B-4**  
**EL CENTRO (9<sup>TH</sup> St)**  
**WIND SPEED AND DIRECTION**

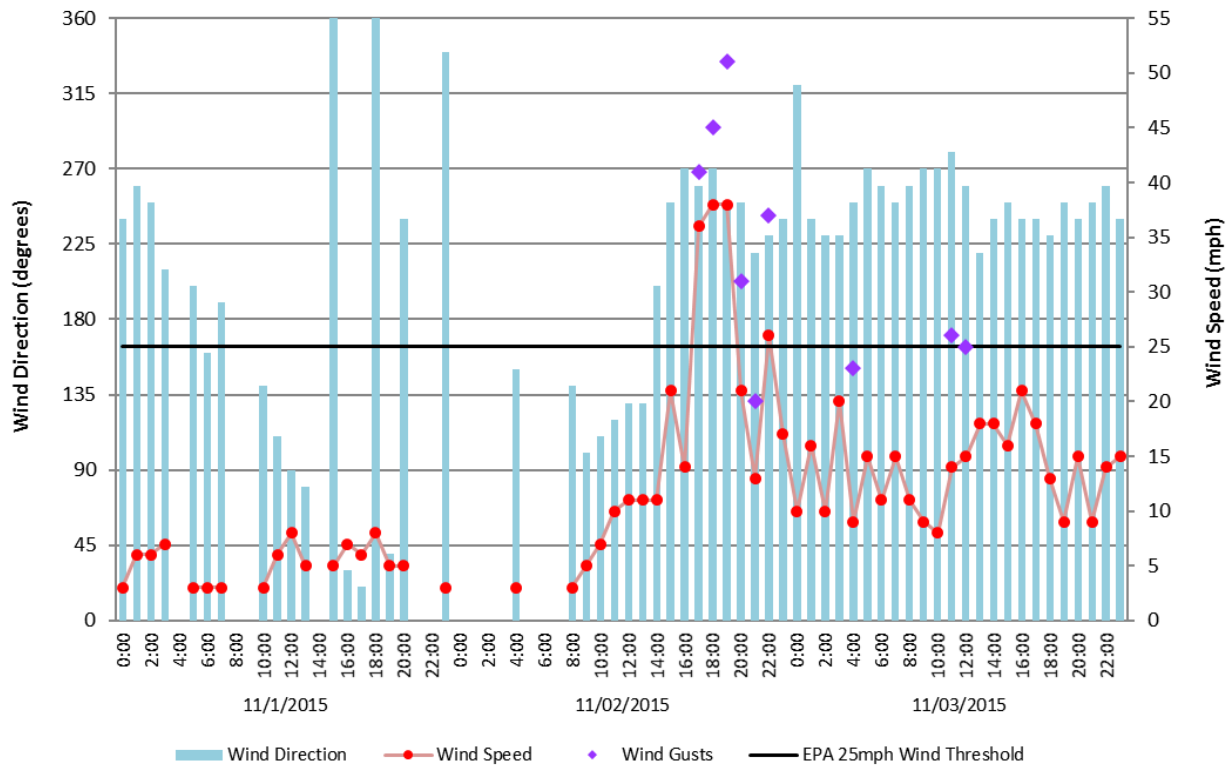


**FIGURE B-5**  
**EL CENTRO WIND ROSE – NOVEMBER 2**

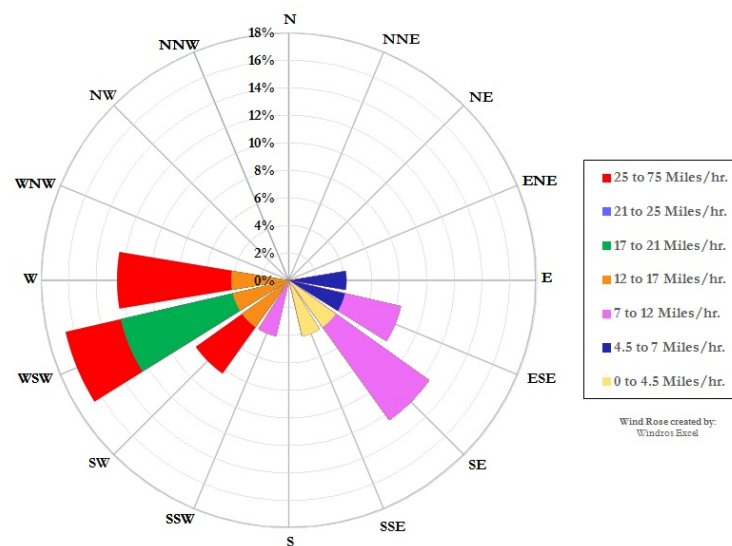


**Figs B-4 through B-5:** El Centro wind data from the EPA's AQS data bank

**FIGURE B-6**  
**EL CENTRO NAF (KNJK)**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**

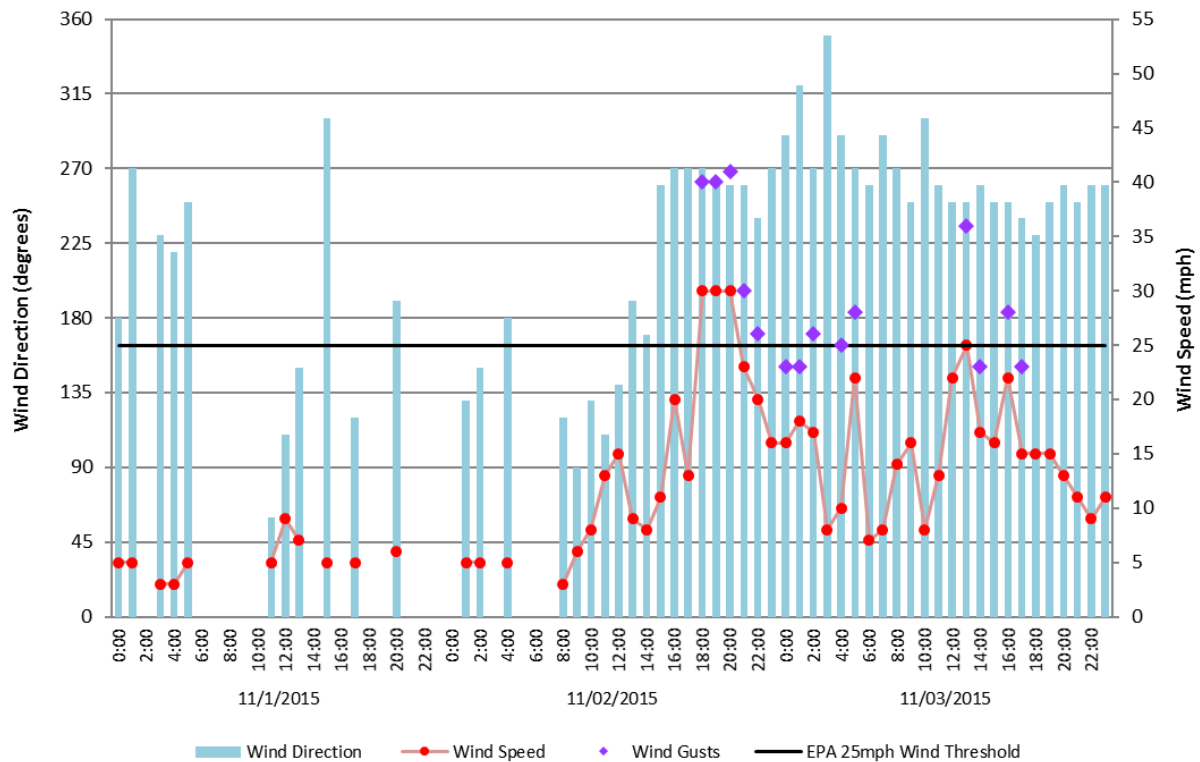


**FIGURE B-7**  
**EL CENTRO NAF (KNJK) WIND ROSE – NOVEMBER 2**

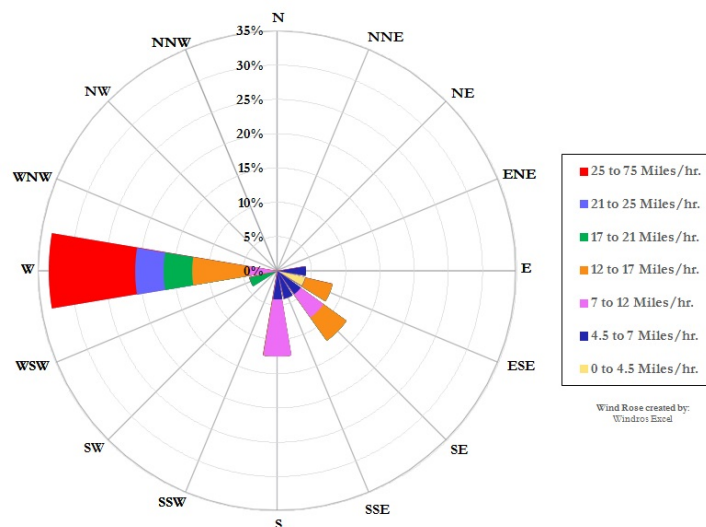


**Figs B-6 through B-7: Wind data from the NCEI's CQLCD system**

**FIGURE B-8**  
**IMPERIAL COUNTY AIRPORT (KIPL)**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**



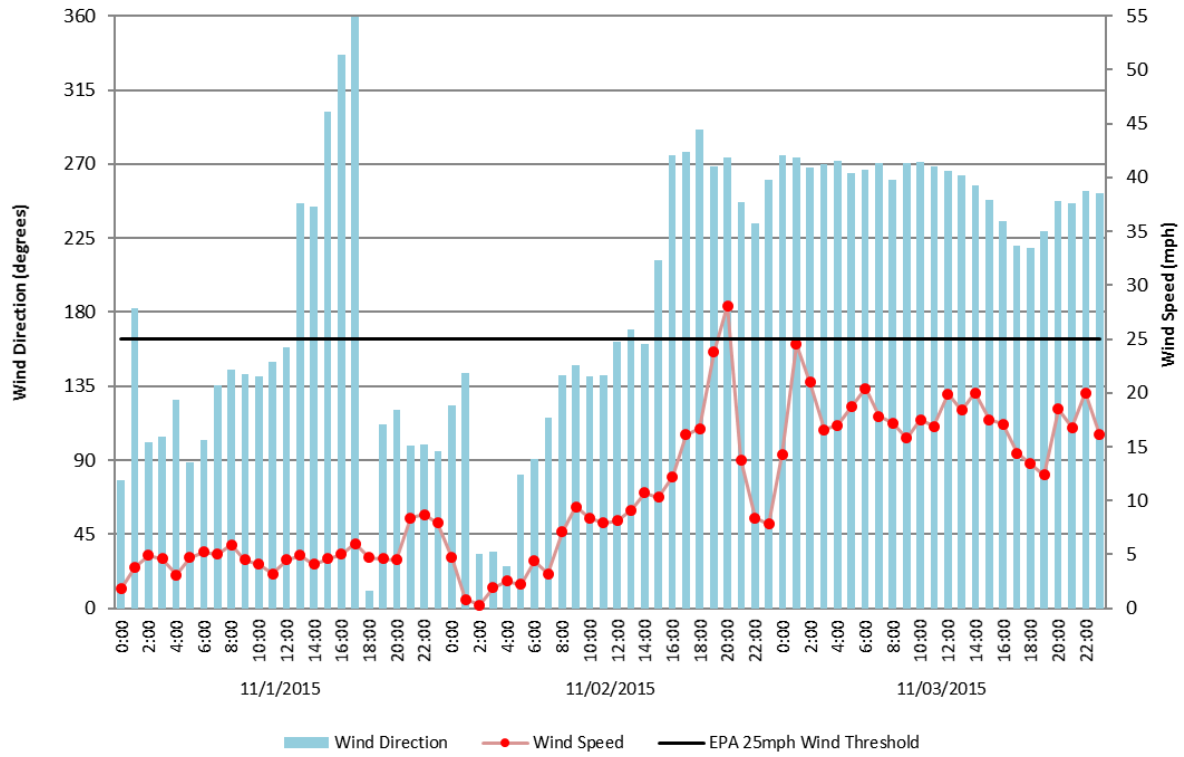
**FIGURE B-9**  
**IMPERIAL COUNTY AIRPORT (KIPL) WIND ROSE – NOVEMBER 2**



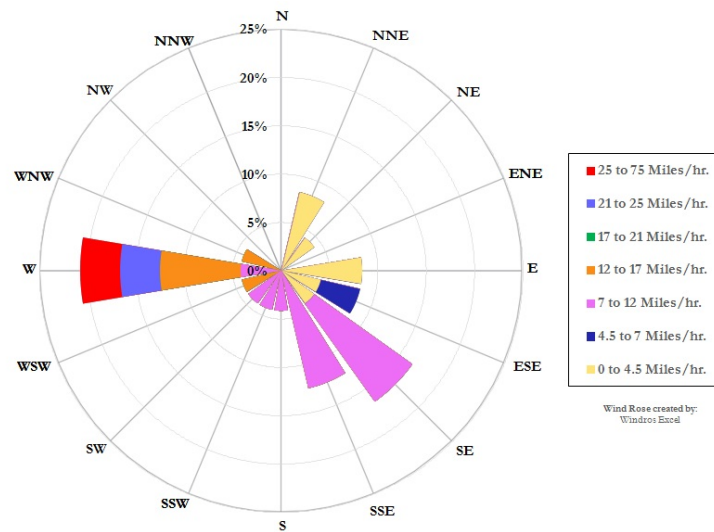
**Figs B-8 through B-9:** Wind data from the NCEI's CQLCD system



**FIGURE B-10**  
**NILAND**  
**WIND SPEED AND DIRECTION**

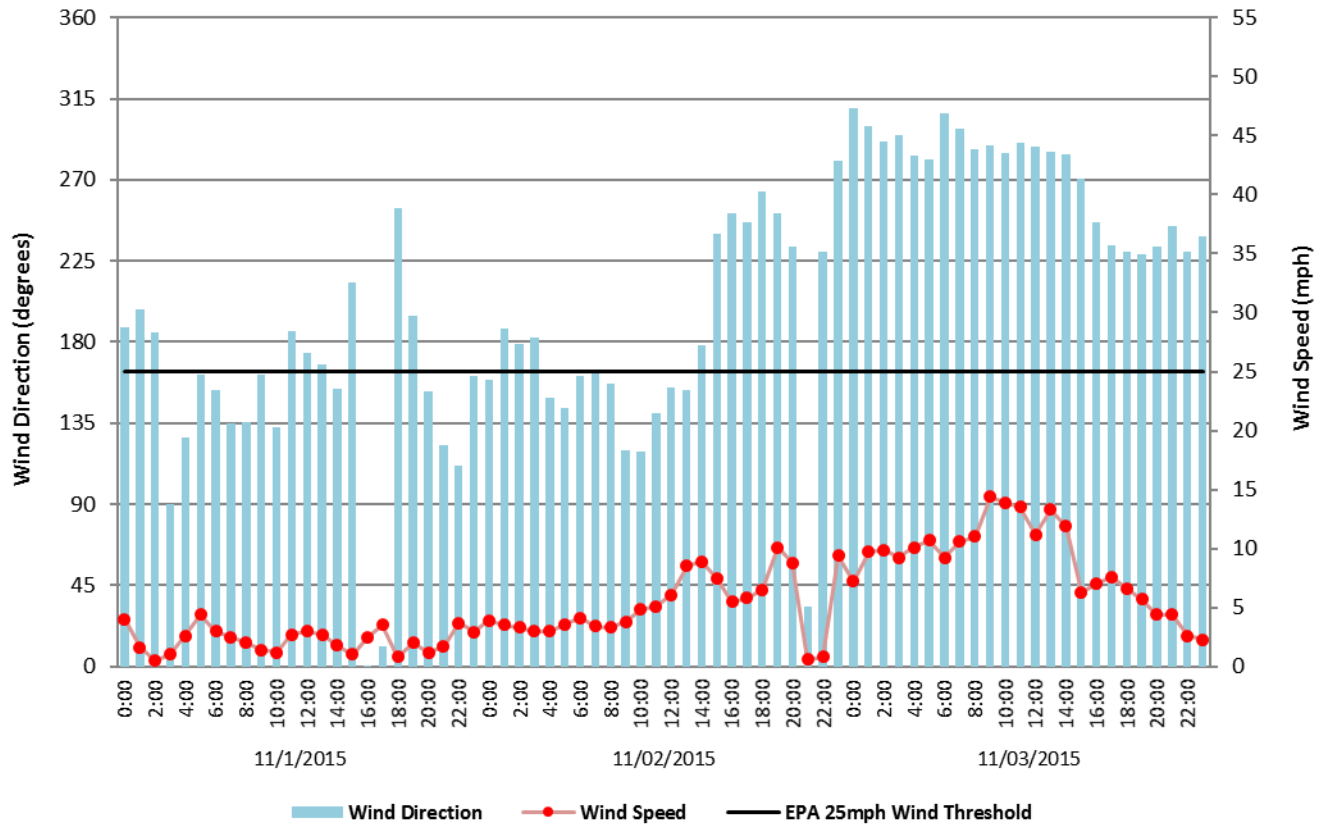


**FIGURE B-11**  
**NILAND (ENGLISH RD) WIND ROSE – NOVEMBER 2**

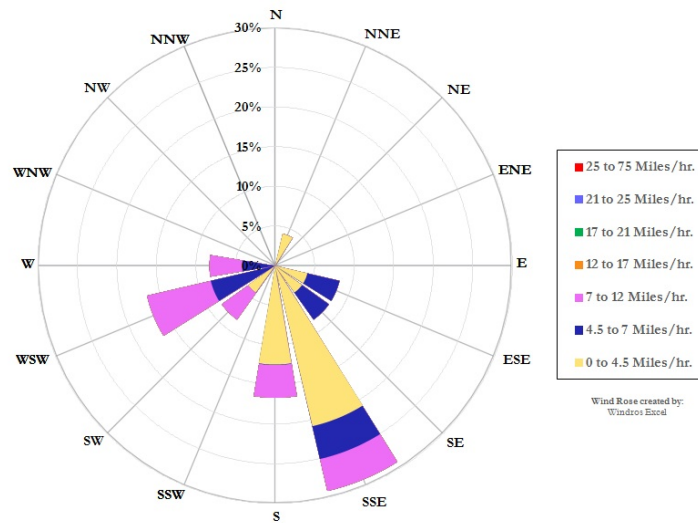


**Figs B-10 through B-11:** Wind data from the AQS data bank

**FIGURE B-12**  
**WESTMORLAND**  
**WIND SPEED AND DIRECTION**



**FIGURE B-13**  
**WESTMORLAND WIND ROSE – NOVEMBER 2**



**Figs B-12 through B-13: Wind data from AQS**

## EASTERN RIVERSIDE COUNTY SITES

**FIGURE B-14**  
**BLYTHE AIRPORT (KBLH)**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**

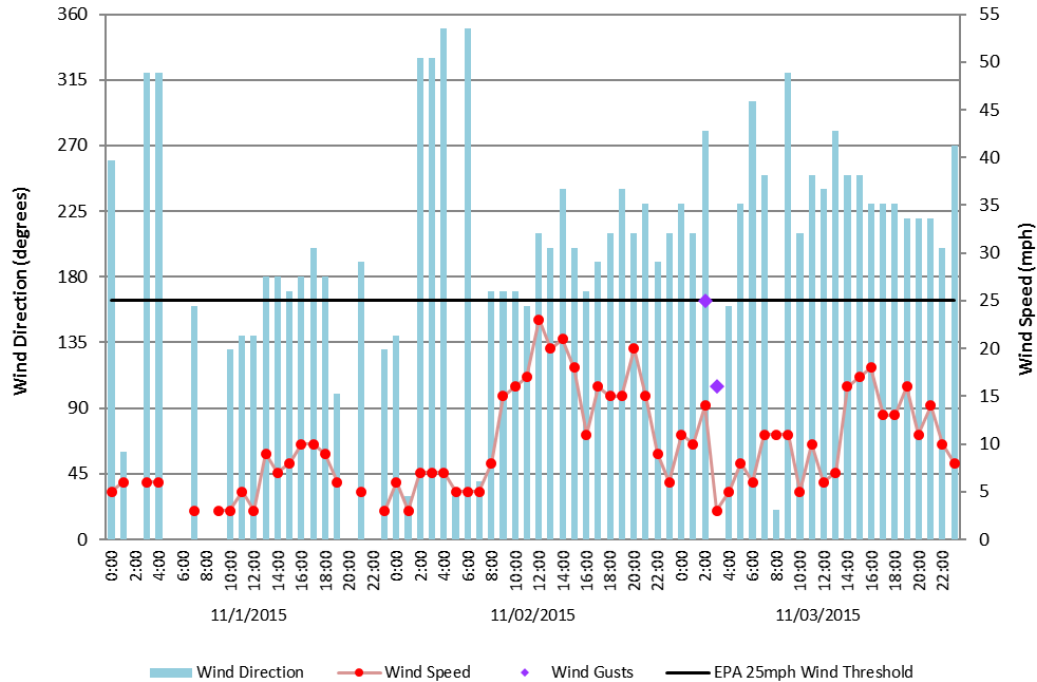


Fig B-14: Wind data from the NCEI's QCLCD system

**FIGURE B-15**  
**JACQUELINE COCHRAN REGIONAL AIRPORT (KTRM)**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**

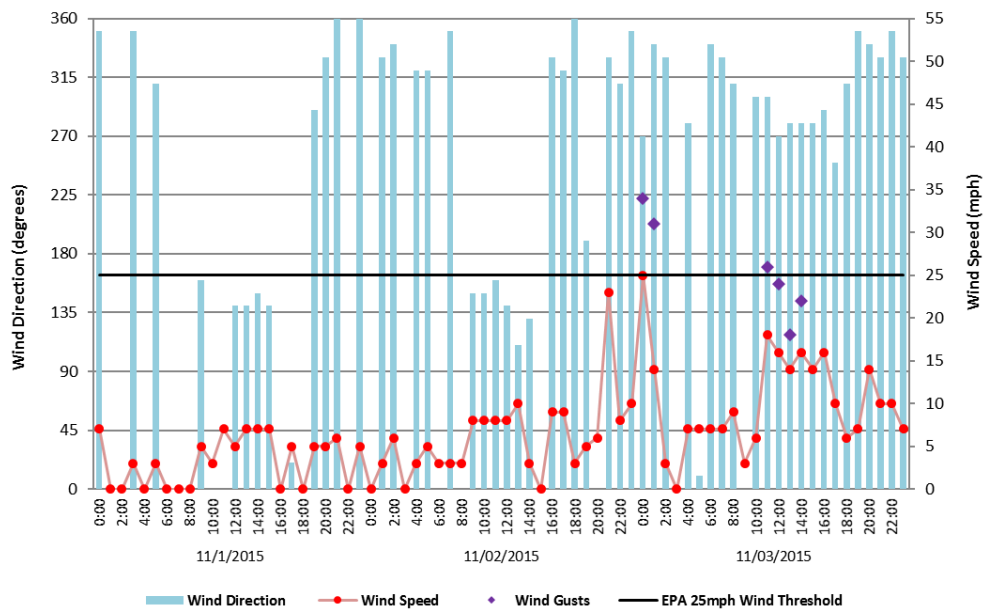


Fig B-15: Wind data from the NCEI's QCLCD system



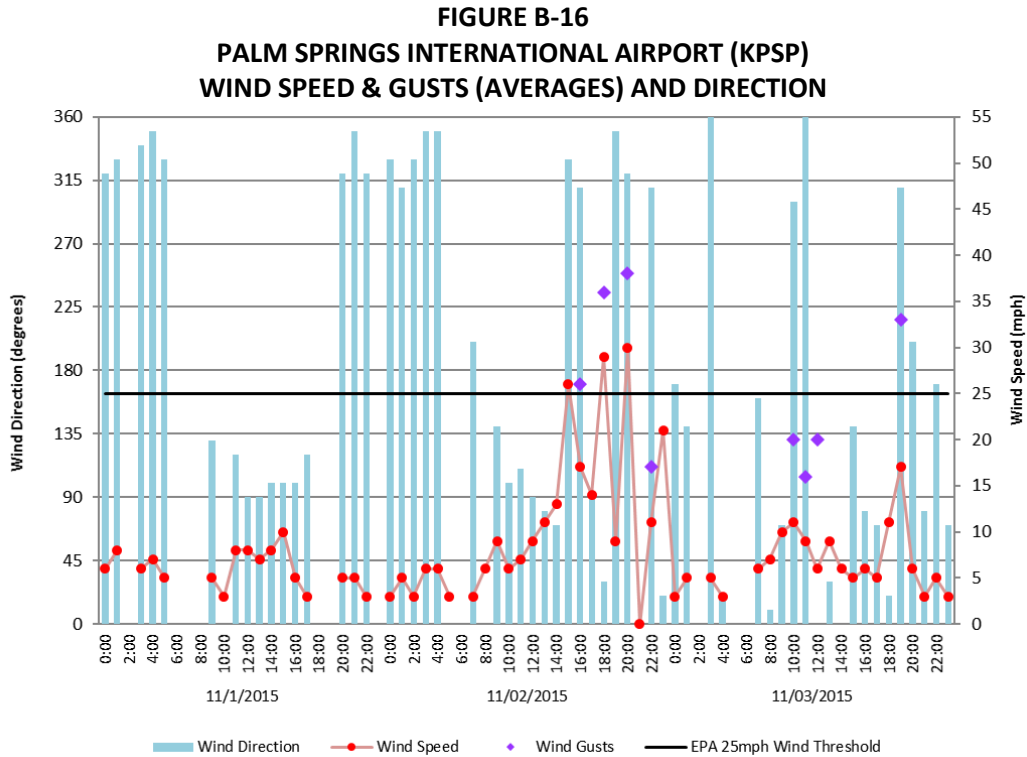


Fig B-15: Wind data from the NCEI's QCLCD system

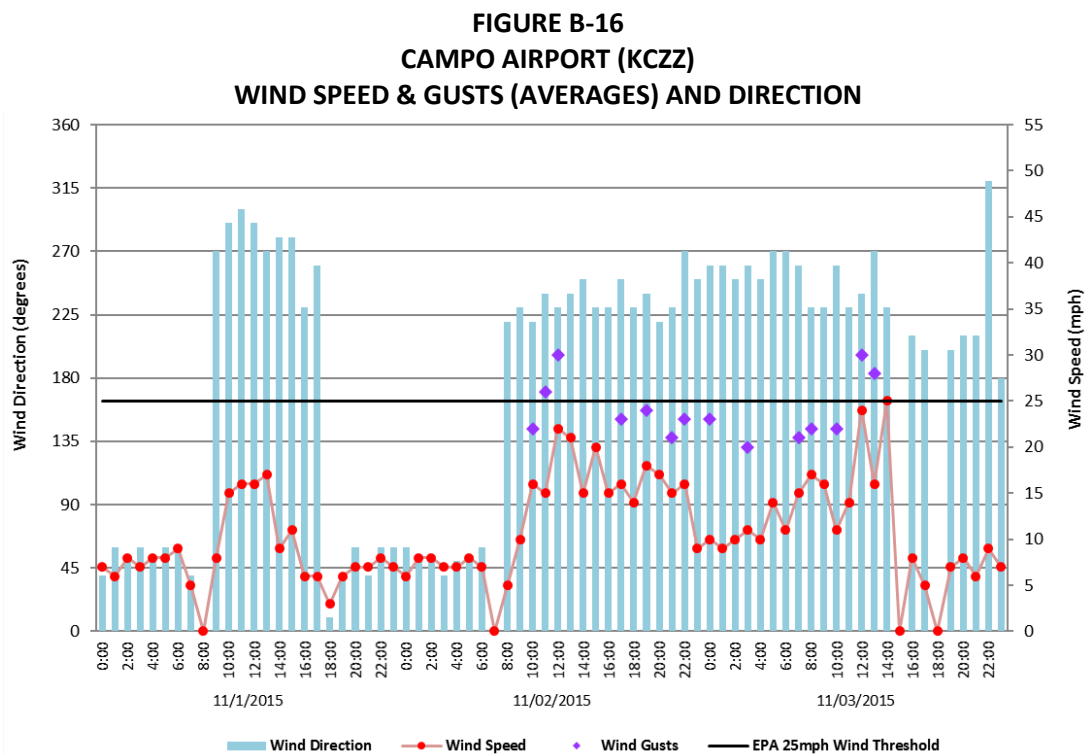
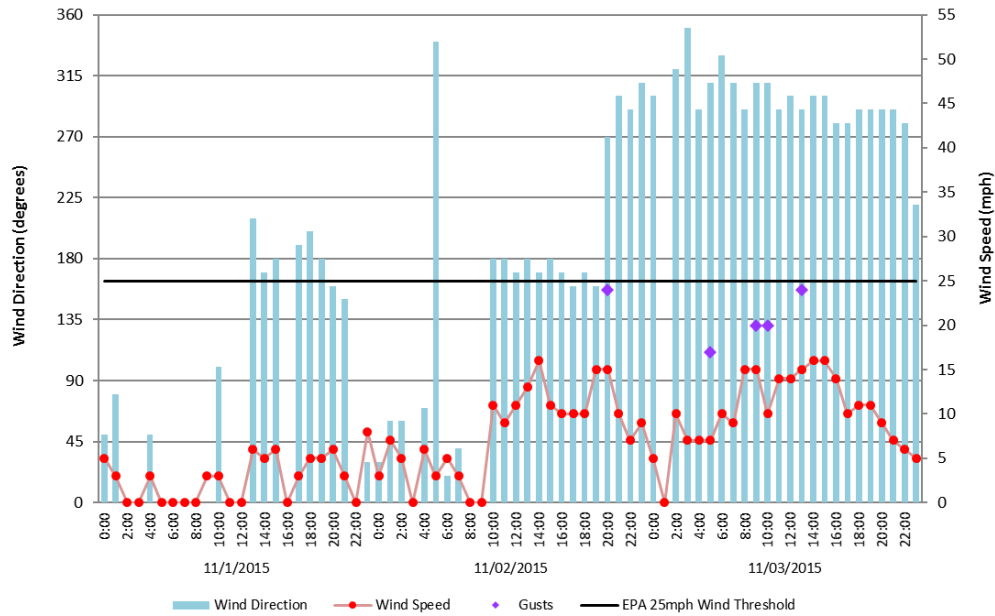
**SAN DIEGO COUNTY**

Fig B-16: Wind data from the NCEI's QCLCD system

## SOUTHWESTERN ARIZONA

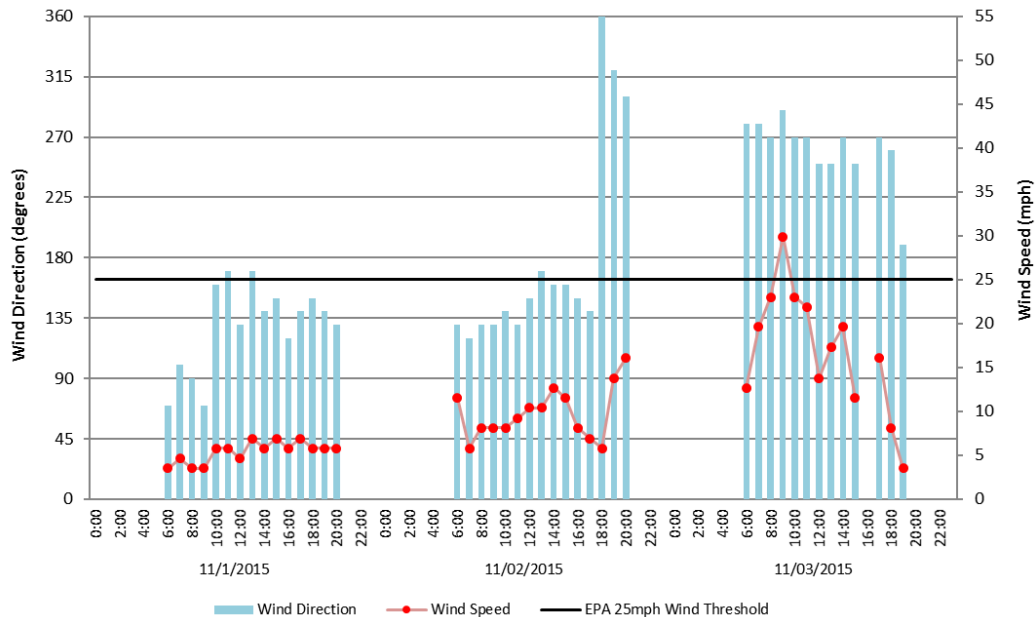
**FIGURE B-17**  
**YUMA MCAS (KNYL)**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**



**Fig B-17:** Wind data from the NCEI's QCLCD system

## MEXICO

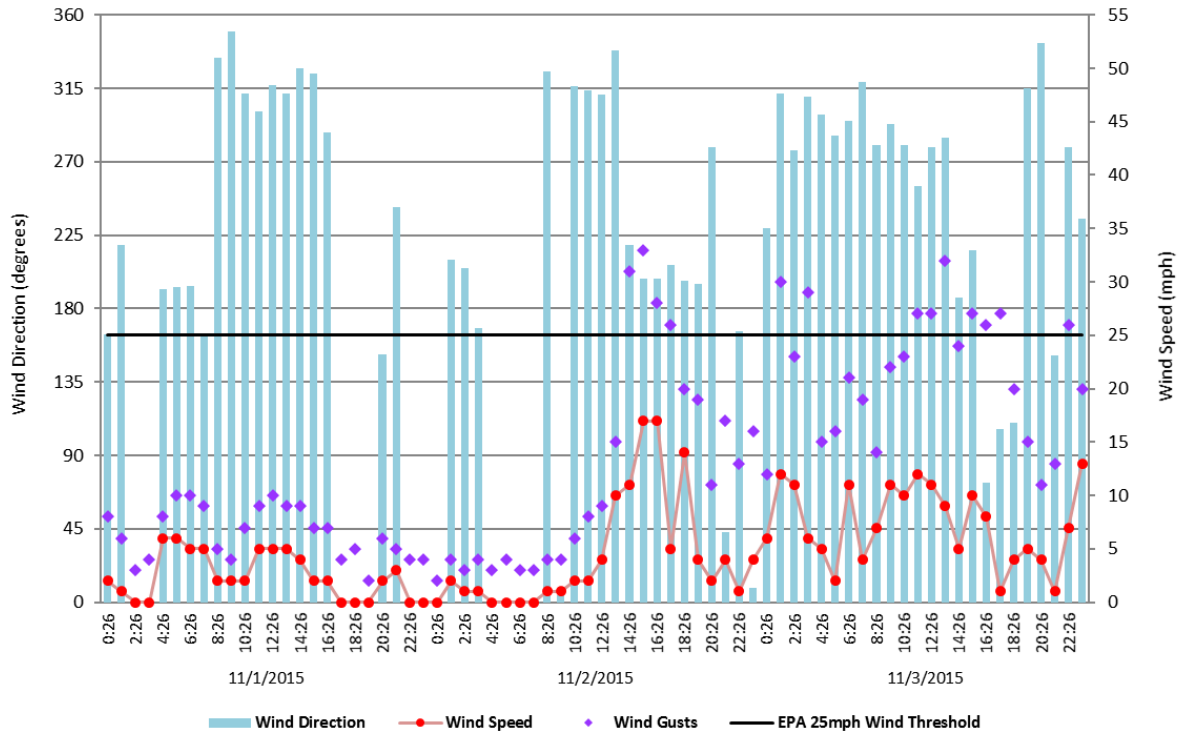
**FIGURE B-18**  
**MEXICALI INTERNATIONAL AIRPORT (MMML)**  
**WIND SPEED AND DIRECTION**



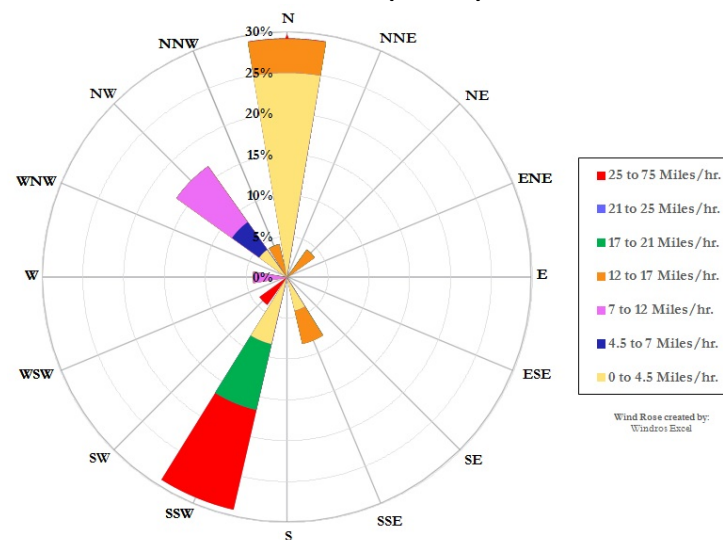
**Fig B-18:** Wind data from the University of Utah's MesoWest system

## UPSTREAM WIND SITES

**FIGURE B-19**  
**FISH CREEK MOUNTAINS**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**

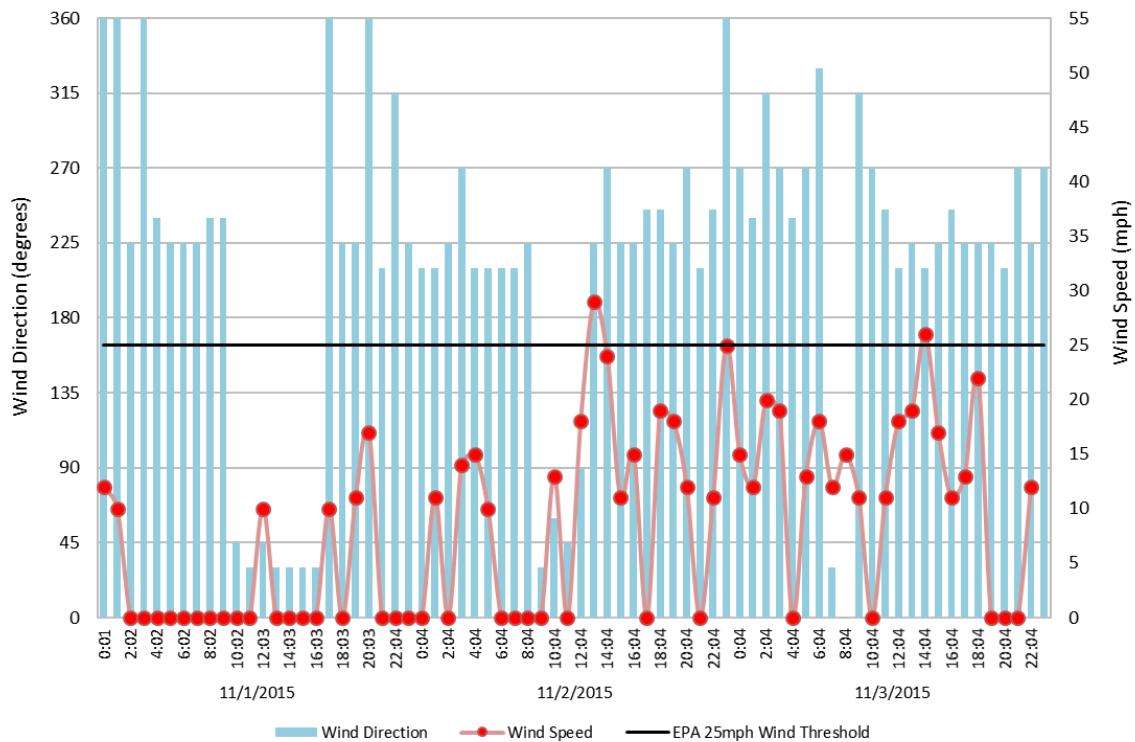


**FIGURE B-20**  
**FISH CREEK MOUNTAINS WIND (GUSTS) ROSE – NOVEMBER 2**

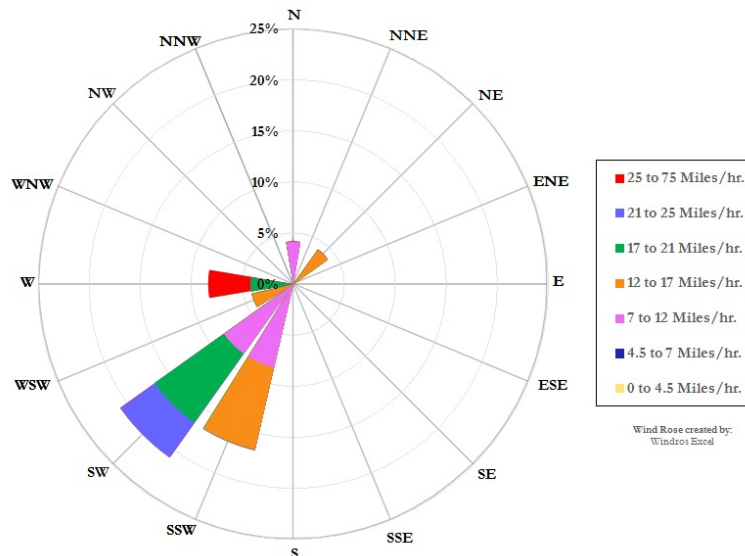


**Figs B-19 through B-20:** Gusts at the Fish Creek Mountain played an important role in transporting dust downstream. Wind rose depicts gusts, not winds. Wind data from the University of Utah's MesoWest system. Station ID: FHCC1

**FIGURE B-21**  
**LAGUNA SALADA**  
**WIND SPEED AND DIRECTION**

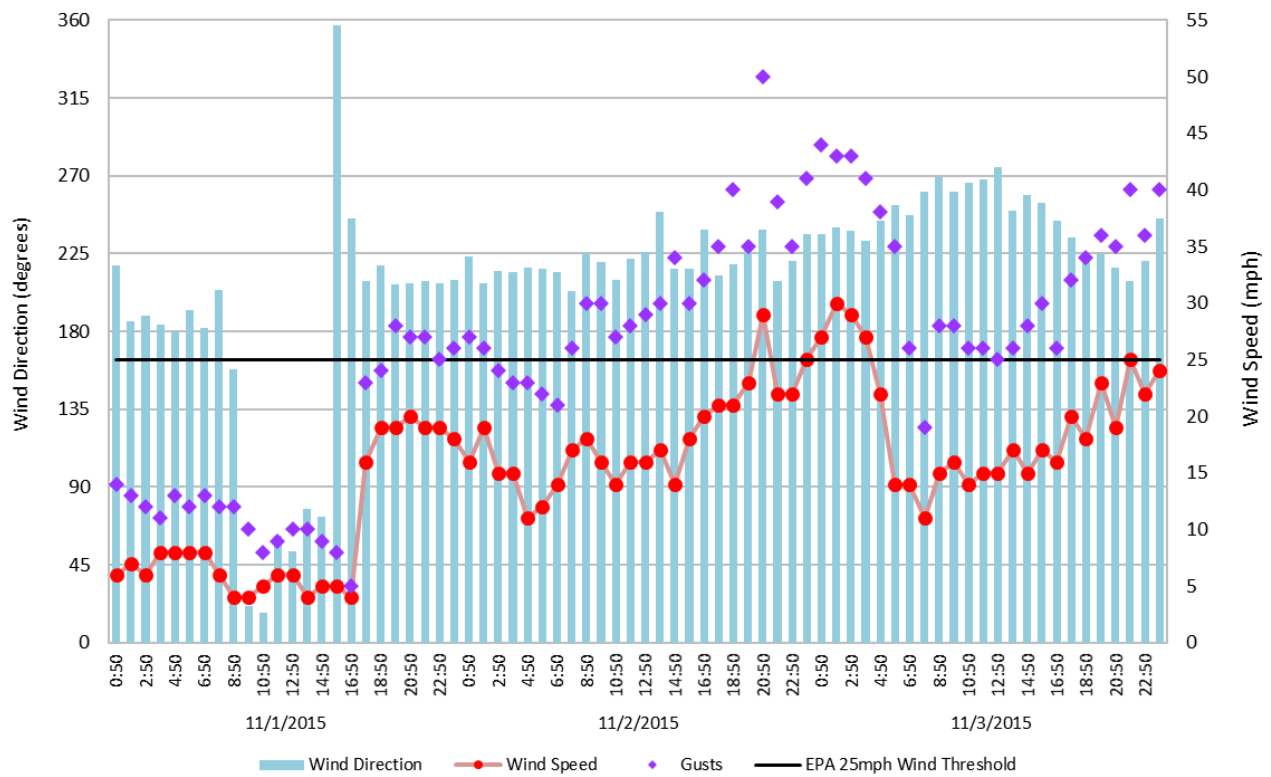


**FIGURE B-22**  
**LAGUNA SALADA WIND ROSE – NOVEMBER 2**

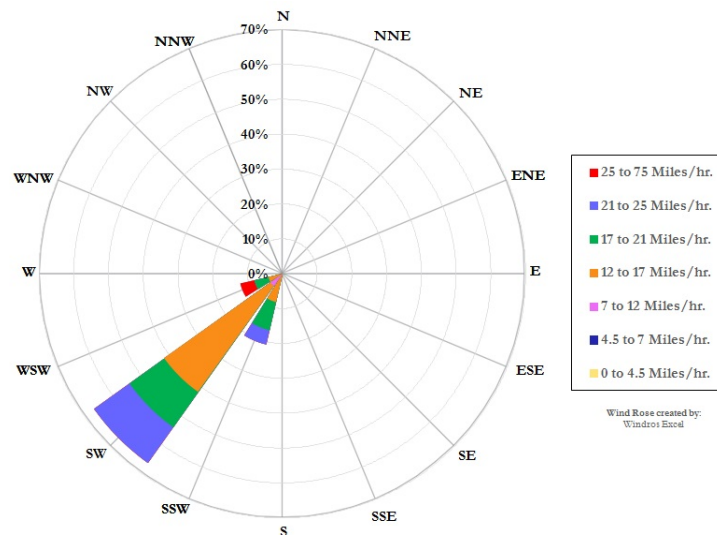


**Figs B-21 through B-22:** Winds downstream at Laguna Salada in Mexico exceeded the 25-mph wind threshold. Wind rose depicts gusts, not winds. Wind data from the Weather Underground. Station ID: Laguna Salada Km 42 BC FIARUM IBCLARUM2

**FIGURE B-23**  
**MOUNTAIN SPRINGS GRADE**  
**WIND SPEED & GUSTS (AVERAGES) AND DIRECTION**



**FIGURE B-24**  
**MOUNTAIN SPRINGS GRADE WIND ROSE – NOVEMBER 2**



**Figs B-23 through B-24:** High Winds and gusts wept down the desert slopes at Mountain Springs Grade and entrained dust. Wind data is from the University of Utah's MesoWest system. Station ID: TNSC

### FIGURE B-25 IMPERIAL COUNTY AIRPORT QCLCD

U.S. Department of Commerce  
National Oceanic & Atmospheric Administration

#### QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE IMPERIAL COUNTY AIRPORT (03144) IMPERIAL, CA (11/2015)

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801

Elevation: -58 ft. below sea level  
Latitude: 32.834  
Longitude: -115.578  
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Altitude (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
02	0053	12	CLR	9.00		63	17.2	54	12.2	46	7.8	54	0	000		29.90		29.83	AA		29.84	
02	0153	12	CLR	10.00		64	17.8	58	14.3	53	11.7	68	5	130		29.88		29.82	AA		29.82	
02	0253	12	CLR	10.00		64	17.8	59	14.9	55	12.8	73	5	150		29.86		29.80	AA		29.80	
02	0353	12	CLR	10.00		58	14.4	54	12.3	51	10.6	78	0	000		29.85		29.79	AA		29.79	
02	0453	12	CLR	10.00		56	13.3	53	11.5	50	10.0	80	5	180		29.86		29.80	AA		29.80	
02	0553	12	CLR	10.00		57	13.9	53	11.5	49	9.4	75	0	000		29.86		29.80	AA		29.80	
02	0653	12	CLR	10.00		59	15.0	54	12.0	49	9.4	70	0	000		29.87		29.80	AA		29.81	
02	0753	12	CLR	10.00		66	18.9	58	14.5	52	11.1	61	0	000		29.88		29.82	AA		29.82	
02	0853	12	CLR	9.00		72	22.2	62	16.6	55	12.8	55	3	120		29.87		29.81	AA		29.81	
02	0953	12	CLR	10.00		78	25.6	64	17.8	55	12.8	45	6	090		29.85		29.79	AA		29.79	
02	1053	12	CLR	10.00		84	28.9	64	18.0	51	10.6	32	8	130		29.82		29.75	AA		29.76	
02	1153	12	CLR	10.00		88	31.1	68	20.0	56	13.3	34	13	110		29.78		29.72	AA		29.72	
02	1253	12	CLR	10.00		92	33.3	67	19.7	52	11.1	26	15	140		29.74		29.68	AA		29.68	
02	1353	12	CLR	10.00		93	33.9	63	17.0	38	3.3	15	9	190		29.71		29.65	AA		29.65	
02	1453	12	CLR	10.00		93	33.9	65	18.1	44	6.7	18	8	170		29.69		29.63	AA		29.63	
02	1553	12	CLR	10.00		89	31.7	61	16.0	37	2.8	16	11	260		29.69		29.62	AA		29.63	
02	1653	12	CLR	10.00		83	28.3	60	15.5	41	5.0	23	20	270		29.67		29.61	AA		29.61	
02	1753	12	CLR	10.00		78	25.6	61	16.0	48	8.9	35	13	270		29.68		29.62	AA		29.62	
02	1853	12	CLR	5.00	HZ	74	23.3	61	16.2	52	11.1	46	30	270	40	29.70		29.64	AA		29.64	
02	1953	12	CLR	4.00	HZ	73	22.8	60	15.5	50	10.0	44	30	260	40	29.71		29.65	AA		29.65	
02	2006	12	FEW007	4.00		73	22.8	59	15.2	49	9.4	43	30	260	41	29.72		M	SP		29.66	
02	2053	12	CLR	10.00		73	22.8	60	15.2	49	9.4	43	22	290	29	29.76		29.69	AA		29.70	
02	2153	12	CLR	10.00		73	22.8	59	15.0	48	8.9	41	23	260	30	29.76		29.70	AA		29.70	
02	2253	12	CLR	10.00		72	22.2	59	15.0	49	9.4	44	20	240	26	29.77		29.71	AA		29.71	
02	2353	12	CLR	10.00		71	21.7	60	15.3	51	10.6	49	16	270	26	29.77		29.71	AA		29.71	

Dynamically generated Mon Apr 18 18:36:18 EDT 2016 via <http://www.ncdc.noaa.gov/qcled/QCLCD>

### FIGURE B-26 EL CENTRO NAF QCLCD

U.S. Department of Commerce  
National Oceanic & Atmospheric Administration

#### QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (may be updated) HOURLY OBSERVATIONS TABLE NAF (23199) EL CENTRO, CA (11/2015)

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801

Elevation: -42 ft. below sea level  
Latitude: 32.816  
Longitude: -115.683  
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti- meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
02	0056	5	CLR	10.00	HZ	59	15.0	50	10.0	41	5.0	51	0	000		29.89		29.90	AA		29.85	
02	0156	5	CLR	10.00		60	15.6	49	9.4	37	2.8	43	0	000		29.88		29.88	AA		29.84	
02	0256	5	CLR	10.00		58	14.4	47	8.4	35	1.7	42	0	000		29.86		29.87	AA		29.82	
02	0356	5	CLR	10.00		55	12.8	46	7.8	36	2.2	49	0	000		29.85		29.86	AA		29.81	
02	0456	5	CLR	10.00		55	12.8	49	9.4	43	6.1	64	3	150		29.86		29.86	AA		29.82	
02	0556	5	CLR	10.00		53	11.7	45	7.3	36	2.2	53	0	000		29.86		29.86	AA		29.82	
02	0656	5	CLR	10.00		57	13.9	50	9.7	42	5.6	57	0	000		29.86		29.87	AA		29.82	
02	0756	5	CLR	6.00		64	17.8	58	14.6	54	12.2	70	0	000		29.88		29.88	AA		29.84	
02	0856	5	CLR	10.00		70	21.1	59	15.1	51	10.6	51	3	140		29.87		29.87	AA		29.83	
02	0956	5	CLR	10.00		77	25.0	61	16.3	50	10.0	39	5	100		29.85		29.85	AA		29.81	
02	1056	5	CLR	10.00		82	27.8	65	18.1	53	11.7	37	7	110		29.81		29.82	AA		29.77	
02	1156	5	CLR	10.00		87	30.6	63	17.4	46	7.8	24	10	120		29.78		29.78	AA		29.74	
02	1256	5	CLR	10.00		90	32.2	67	19.6	53	11.7	28	11	130		29.73		29.74	AA		29.69	
02	1356	5	FEW030	10.00		92	33.3	64	17.9	44	6.7	19	11	130		29.71		29.71	AA		29.67	
02	1456	5	FEW055	10.00		93	33.9	62	16.6	36	2.2	13	11	200		29.69		29.70	AA		29.65	
02	1556	5	FEW055	10.00		90	32.2	60	15.2	31	-0.6	12	21	250		29.69		29.70	AA		29.65	
02	1656	5	FEW055	10.00	83	28.3	60	15.7	42	5.6	24	14	270		29.69		29.70	AA		29.65		
02	1756	5	FEW055	4.00	BDLU	77	25.0	61	16.3	50	10.0	39	36	260	41	29.68		29.69	AA		29.64	
02	1856	5	FEW055	2.00	BDLU	74	23.3	60	15.7	50	10.0	43	38	270	45	29.72		29.73	AA		29.68	
02	1927	5	FEW055	3.00	BDLU	73	22.8	59	15.0	48	8.9	41	37	260	43	29.75		M	SP		29.71	
02	1956	5	FEW055	4.00	BDLU	73	22.8	59	15.0	48	8.9	41	38	250	51	29.74		29.75	AA		29.70	
02	2056	5	FEW055	10.00		73	22.8	60	15.2	49	9.4	43	21	250	31	29.76		29.77	AA		29.72	
02	2156	5	FEW050	10.00		72	22.8	58	14.5	46	7.8	38	13	220	20	29.79		29.79	AA		29.75	
02	2256	5	FEW050	10.00		72	22.2	59	15.0	49	9.4	44	26	230	37	29.77		29.78	AA		29.73	
02	2356	5	CLR	10.00		70	21.1	59	14.8	50	10.0	49	17	240	26	29.77		29.78	AA		29.73	

Dynamically generated Mon Apr 18 18:34:50 EDT 2016 via <http://www.ncdc.noaa.gov/qcled/QCLCD>